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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,676	11/24/2003	Taisuke Yamauchi	117855	1219
25944	7590	05/31/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			QUARTERMAN, KEVIN J	
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			2879	

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/718,676

Applicant(s)

YAMAUCHI, TAISUKE

Examiner

Kevin Quarterman

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11 and 14-21 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1103; 1205a; 1205b.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-11 and 14-21, in the reply received on 10 February 2006 is acknowledged. The traversal is on the ground(s) that the subject matter of all claims is sufficiently related that a thorough search and examination of the entire application could be made without serious burden. This is not found persuasive because the field of search for the non-elected invention is likely to include search in the arts of manufacturing processes, which would not be required for examination of the elected invention. Thus, the requirement is still deemed proper and is therefore made FINAL.
2. Claims 12-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10 February 2006.
3. In order to retain the right to rejoinder, applicant is advised that the claims to the nonelected invention should be amended during prosecution to require the limitations of the elected invention. Failure to do so may result in a loss of the right to rejoinder (MPEP § 821.04).

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2879

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 14-20 are rejected under 35 U.S.C. 102(e) as being anticipated by

Yonekubo (US 2004/0108980).

6. The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

7. Regarding independent claim 14, Figure 5 of Yonekubo shows a self-emitting element comprising a display layer (21) that includes a light-emitting element (14); and an output layer (35) that is transparent, is disposed in an emitting direction of the display layer, and includes an angle changer (24) that changes a direction of the light output from the light-emitting element to a direction of the emitting side, wherein a refractive index of the output layer is either almost the same as or greater than a refractive index of the light-emitting element.

8. Regarding claim 15, Figure 5 of Yonekubo shows the angle changer being any one of a micro lens, a micro prism, and a micro mirror.

9. Regarding claim 16, Yonekubo discloses the display layer including a transparent electrode layer, and the transparent electrode layer has a refractive index greater than

Art Unit: 2879

that of the light-emitting element and sandwiches the light-emitting element ([0035]-[0037]).

10. Regarding claim 17, Figure 4 of Yonekubo shows an anti-reflective layer in an interface between the transparent electrode layer and the output layer.

11. Regarding claim 18, Figure 5 of Yonekubo shows a sealing layer (23) that is transparent and is disposed in an emitting direction of the output layer, wherein a gas ([0039]) that has a refractive index of almost one is filled between the output layer and the sealing layer.

12. Regarding independent claim 19, Figure 5 of Yonekubo shows a display panel comprising a plurality of self-emitting elements that are arranged two-dimensionally in a matrix form, wherein each of the self-emitting elements includes a display layer (21) that includes a light-emitting element (14); and an output layer (35) that is transparent, is disposed in an emitting direction of the display layer, and includes an angle changer (24) that changes a direction of the light output from the light-emitting element to a direction of the emitting side, wherein a refractive index of the output layer is either almost the same as or greater than a refractive index of the light-emitting element.

13. Regarding independent claim 20, Figures 1 and 5 of Yonekubo show a display apparatus comprising a display panel that includes a plurality of self-emitting elements that are arranged two-dimensionally in a matrix form, wherein each of the self-emitting elements includes a display layer (21) that includes a light-emitting element (14); an output layer (35) that is transparent, is disposed in an emitting direction of the display layer, and includes an angle changer (24) that changes a direction of the light output

from the light-emitting element to a direction of the emitting side, wherein a refractive index of the output layer is either almost the same as or greater than a refractive index of the light-emitting element, and a drive unit (9) that drives the display layer of the display panel and displays an image.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-3, 5-11, and 21 are rejected under 35 U.S.C. 103(a) as being obvious over Yonekubo (US 2004/0108980) in view of Ichikawa (US 6,906,452).

16. The applied reference (Yonekubo) has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the

Art Unit: 2879

application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

17. Regarding independent claim 1, Figure 4 of Yonekubo shows a self-emitting element comprising a light-emitting layer (14) that is disposed between electrodes (12-15) and emits light upon applying a voltage between the electrodes; a protective layer (16) that covers an emitting side of the light-emitting layer, forms an interface between the protective layer and an external medium, and has a thickness that allows the light emitted from the light-emitting layer to undergo total reflection at least once at the interface in an area of the light-emitting layer (Abstract); and an angle changer (24a) that is disposed at a periphery of the light-emitting layer and changes a direction of the light propagating in the protective layer so that the light is incident on the interface at less than a critical angle ( $\theta_c$  [0043]).

18. Yonekubo teaches the limitations of independent claim 1, as discussed earlier. Figure 4 of Yonekubo shows a cathode layer (15) covering an opposite side, as viewed from the light-emitting layer, of the protective layer but fails to exemplify the cathode being reflective.

19. Ichikawa teaches that it is known in the art to provide self-emitting elements with cathodes comprising Mg—Ag alloy for reflecting light (col. 8, ln. 28-30).

20. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the self-emitting element of Yonekubo with a

reflective cathode, as taught by Ichikawa, for reflecting light from the light-emitting layer toward the protective layer.

21. Regarding claim 2, Ichikawa discloses the reflective layer being one of the electrodes (col. 8, ln. 28-30).

22. Regarding claim 3, Figure 4 of Yonekubo shows the angle changer being a reflective surface that is inclined so that a space at the emitting side increases.

23. Regarding claim 5, Figure 4 of Yonekubo shows a bank (13) that projects on the emitting side to separate the light-emitting layer from other light-emitting layer, wherein an inner surface of the bank is the angle changer, and the protective layer is formed in an area that is enclosed with the bank.

24. Regarding claim 6, Figure 4 of Yonekubo shows a bank (13) that projects on the emitting side to separate the light-emitting layer from other light-emitting layer and a protrusion (25) made of an insulating material that projects toward the emitting side from the bank, wherein an inner surface (24a) is the angle changer and the protective layer is formed in an area that is enclosed with the protrusion.

25. Regarding claim 7, Yonekubo discloses the light-emitting layer as an organic electroluminescent layer ( $\Pi$  [0036]).

26. Regarding independent claim 8, Figure 4 of Yonekubo shows a display panel comprising a plurality of light-emitting layers (14), each of the light-emitting layers being disposed between electrodes (12-15) and emitting light upon applying a voltage between the electrodes; a protective layer (16) that covers an emitting side of the light-emitting layers, forms an interface between the protective layer and an external



Art Unit: 2879

medium, and has a thickness that allows the light emitted from the light-emitting layers to undergo total reflection at least once at the interface in an area of the corresponding light-emitting layer (Abstract); and a plurality of angle changers (24a) that are disposed at a periphery of each of the light-emitting layers and changes a direction of the light propagating in the protective layer so that the light is incident on the interface at less than a critical angle ( $\theta_c$  [0043]).

27. Yonekubo teaches the limitations of independent claim 8, as discussed earlier.

Figure 4 of Yonekubo shows a cathode layer (15) covering an opposite side, as viewed from the light-emitting layer, of the protective layer but fails to exemplify the cathode being reflective.

28. Ichikawa teaches that it is known in the art to provide self-emitting elements with cathodes comprising Mg—Ag alloy for reflecting light (col. 8, ln. 28-30).

29. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the self-emitting element of Yonekubo with a reflective cathode, as taught by Ichikawa, for reflecting light from the light-emitting layer toward the protective layer.

30. Regarding claim 9, Figure 4 of Yonekubo shows a plurality of banks (13) that project on the emitting side to separate the light-emitting layers from each other, wherein each of inner surfaces of the bank is the angle changers, and the protective layer is formed in an area that is enclosed with the each of the banks.

31. Regarding claim 10, Figure 4 of Yonekubo shows a plurality of banks (13), each of the banks projecting on the emitting side to separate the light-emitting layers from

Art Unit: 2879

each other and a plurality of protrusions (25), each of the protrusions made of an insulating material projecting toward the emitting side from each of the banks, wherein each of the inner surfaces (24a) of the protrusion is each of the angle changers and the protective layer is formed in an area that is enclosed with the each of the protrusions.

32. Regarding independent claim 11, Figures 1 and 4 of Yonekubo show a display apparatus comprising a display panel that includes a plurality of light-emitting layers (14), each of the light-emitting layers being disposed between electrodes (12-15) and emitting light upon applying a voltage between the electrodes; a protective layer (16) that covers an emitting side of the light-emitting layers, forms an interface between the protective layer and an external medium, and has a thickness that allows the light emitted from the light-emitting layers to undergo total reflection at least once at the interface in an area of the corresponding light-emitting layer (Abstract); a plurality of angle changers (24a) that are disposed at a periphery of each of the light-emitting layers and changes a direction of the light propagating in the protective layer so that the light is incident on the interface at less than a critical angle ( $\theta_c$  [0043]); and a drive unit (9) that drives the light-emitting layers of the display panel and displays an image.

33. Yonekubo teaches the limitations of independent claim 11, as discussed earlier. Figure 4 of Yonekubo shows a cathode layer (15) covering an opposite side, as viewed from the light-emitting layer, of the protective layer but fails to exemplify the cathode being reflective.

34. Ichikawa teaches that it is known in the art to provide self-emitting elements with cathodes comprising Mg—Ag alloy for reflecting light (col. 8, ln. 28-30).

35. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the self-emitting element of Yonekubo with a reflective cathode, as taught by Ichikawa, for reflecting light from the light-emitting layer toward the protective layer.

36. Regarding independent claim 21, Figure 4 of Yonekubo shows a self-emitting element comprising a light-emitting layer (14) that is disposed between electrodes (12-15) and emits light upon applying a voltage between the electrodes; a protective layer (16) that covers an emitting side of the light-emitting layer, forms an interface between the protective layer and an external medium, and has a thickness that allows the light emitted from the light-emitting layer to undergo total reflection at least once at the interface in an area of the light-emitting layer (Abstract); and an angle changer (24a) that is disposed at a periphery of the light-emitting layer and changes a direction of the light propagating in the protective layer so that the light is incident on the interface at less than a critical angle ( $\theta_c$  [0043]), wherein a refractive index of the protective layer is either almost the same as or greater than a refractive index of the light-emitting layer.

37. Yonekubo teaches the limitations of independent claim 21, as discussed earlier. Figure 4 of Yonekubo shows a cathode layer (15) covering an opposite side, as viewed from the light-emitting layer, of the protective layer but fails to exemplify the cathode being reflective.

38. Ichikawa teaches that it is known in the art to provide self-emitting elements with cathodes comprising Mg—Ag alloy for reflecting light (col. 8, ln. 28-30).

Art Unit: 2879

39. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the self-emitting element of Yonekubo with a reflective cathode, as taught by Ichikawa, for reflecting light from the light-emitting layer toward the protective layer.

#### ***Allowable Subject Matter***

40. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

41. The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 4, the prior art of record neither shows or suggests a self-emitting element comprising, in addition to other limitations of the claim, an angle changer being a refractive surface that is inclined so that a space at an emitting side decreases.

#### ***Conclusion***

42. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kobayashi (US 2004/0017335) discloses a light-emitting apparatus. Kobayashi (US 2004/0119406) discloses an electroluminescence apparatus.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (571) 272-2461. The examiner can normally be reached on M-TH (7-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300..

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Quarterman  
Examiner  
Art Unit 2879

kq   
22 May 2006

  
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